

The Canadian Entomologist.

VOL. IV.

LONDON, ONT., DECEMBER, 1872.

No. 12

MICRO - LEPIDOPTERA.

BY V. T. CHAMBERS, COVINGTON, KENTUCKY.

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YPSOLOPHUS.

1. *Y. eupatoriella*. N. sp.

Tongue dark brown; basal joint of the palpi, and the second joint externally, and on the under surface, dark brown; upper surface pale ochreous; tip white; third joint dark ochreous, tipped with dark brown. Head pale bronzy brown, with purplish reflections, each scale tipped with white. Sides of the thorax and base of the wings ochreous yellow, *extending along the costal portion of the wings, gradually narrowing to about the middle of the costa.* A median, longitudinal, wide, violaceous, brown band extends over the thorax and *along the extreme dorsal margin of the wings*, gradually becoming lighter in color till about the middle of the dorsal margin it unites with a bluish-purple wide band, which crosses the wing just behind the middle, gradually passing on the costal margin into the ochreous portion. *Upon the fold, beginning near the base, is a velvety deep black stripe which extends, gradually widening, to the bluish-purple band, and is deeply scalloped next to the ochreous portion of the wing, which it separates from the dorsal margin.* The bluish-purple band is narrowly margined externally by an ochreous line, followed by a narrow black line, behind which, to the apex, the wing is dark brown with faint ochreous or purplish reflections, the ciliae also being of the same hue, with a row of eight or nine small ochreous dots or streaks extending around their base. Under surface and legs bronzy dark brown; tarsi annulate with pale ochreous.

The larva is greenish-white, over half an inch long. It feeds upon the under side of a folded leaf of *Eupatorium ageratoides*, folding it so as to apply one of the large veins to the midrib. It became a pupa under the folded edge of the leaf, July 12, and the imago emerged July 20. It is much the handsomest species of the genus known to me.

2. Y. Reedella. N. sp.

Palpi yellowish-brown, paler on the internal surface of the second and upper surface of the third joint. Tongue brownish. Face grayish-white. Antennæ, head and thorax slightly iridescent, pale yellowish-brown, faintly suffused with roseate; there is a large brown spot on the centre of the anterior margin of the thorax, which sends a narrow streak to each side of the apex, and a brown spot on each side in front of the wings. Anterior wings suffused and dusted with brown upon a ground color of yellowish-ochreous, especially along the dorsal margin towards the base. Two large spots on the disc, and the apical portion of the wing dark brown. (To the naked eye the spots appear rather to be irregular, not well defined fasciae.) About five minute brown dots around the dorso-apical margin, one of which is at the extreme apex. Ciliae fulvous. Posterior wings very pale fuscous with a silvery tinge. Abdomen shining ochreous yellow, dusted thickly with brown, and with a dark brown, rather wide streak on the tergum, extending from the base half way to the apex; venter pale ochreous yellow, with a distinct dark brown spot on each side of each segment, and a faint one in the middle. Under surface of the thorax white, legs brown on their anterior surfaces, tarsi brown, annulate with white. Alar ex. $\frac{5}{8}$ inch. Larva unknown. Captured in September at the lamp.

The vertex is narrow elongate. Wings rather elongate in proportion to width. Abdomen conical.

Named for Mr. E. B. Reed, of the CAN. ENT.

Possibly this may be a variety of *Y. pomellus*, Harris, but I think it is different. I have other specimens agreeing with some of Dr. Fitch's varieties of *pomellus*, but I am by no means sure that he is right in regarding them as mere varieties. Harris and Fitch place all these species in *Chaetochilus*, Steph.

3. Y. quercipominella. N. sp.

Palpi dark purplish brown, sprinkled with white on the under and outer surfaces; upper and inner surfaces and tip pale ochreous. Tongue and maxillary palpi pale purplish-brown. Antennæ dark purplish brown. Head, thorax, and costa at the base, ochreous yellow, tinged with purplish fuscous in some lights. Costal half of the wings, beyond the base, pale ochreous, with a row of minute dark brown dots on the costa; dorsal half dark purplish-brown, twice faintly notched in the basal half. An ochreous streak around the dorso-apical margin, containing about six small, dark purplish or brown dots. Costo-apical ciliae ochreous, extreme

apical ciliae purplish brown, dorso-apical ciliae ochreous, streaked with purplish brown. Posterior wings and ciliae pale slate color. Abdomen purplish-brown.

The vertex and anterior wings are very much elongate and narrow, and the abdomen is sub-depressed. *Alar ex.* $\frac{5}{8}$ inch.

The larva feeds in the "Oak Apple" (gall of *Cynips spongifica*, Harris.) Head yellowish, body green, dorsum dusky green, with two longitudinal whitish lines (which, under the lens, appear to be made of small spots.) Two curved black lines on top of the first segment, and two black spots on each side of it; eight black spots on each of the next three segments, and five on each of the remainder, except the penultimate and ante-penultimate. It became a pupa June 7th, and the imago emerged June 16th. Kentucky.

The wings do not differ from Dr. Clemens' description of *Y. flavivittellus*, but he says: "head, antennae and palpi fuscous."

This resembles, but I think is different from *Y. (Chetochilus) contubernalis*, Fitch.

4. *Y. querciella*. N. sp.

Tongue yellowish, except the basal part, which is brown. Palpi yellowish on the inner surface, brick red, suffused with fuscous on the outer surface, especially at the base of the second joint. Antennae pale yellowish, the apical half of each joint brown on the upper surface. Face pale yellowish, slightly iridescent. Vertex, thorax and anterior wings pale brick red, with a pink tinge, the wings sparsely but distinctly dusted with dark brown, especially the apical portion, and with nine small dark brown dots around the apex. Abdomen ochreous yellow above, brownish beneath, with two pale ochreous yellow lines. *Alar ex.* over $\frac{3}{4}$ inch. Kentucky.

The mature larva is nearly one inch long; when nearly mature, the first segment and head are grayish ferruginous with a tinge of rufous; remaining segments greenish, with the posterior margin of each whitish. There are two dorsal longitudinal white lines, and one on each side, and six to eight black spots on each segment. Before becoming a pupa it became bright brick red on top, and pinkish-yellow on the sides. (Another instance of the colors of the imago assumed by the larva.) It became a pupa June 2nd, and the imago emerged June 11th.

This is, in one respect, a singular insect. It is much larger and more robust than the preceding species (*Y. quercipomella*), but in all other

respects the structure of the two insects is identical, except that while the forewings of that species are very long and narrow, and almost pointed, in this their width at the apex is more than one-fourth of their length, with the costo-apical angle rather sharply, and the dorso-apical very obtusely rounded, and the apex oblique and a little concave. Yet the neuration does not differ. There is a similar difference in the shape of the hind wings, but none in the neuration. But for the palpi, it would, in external appearance, resemble a *Tortrix*.

5. *Y. caryaefoliella*. N. sp.

Tongue yellowish, except at the base, where it is brownish. Palpi dark purplish-brown, except the inner surface, which is pale yellowish, and the apex of the tuft, which is dusky grey. Head, antennae and thorax reddish-golden, suffused with fuscous, in some lights appearing dark golden, in others reddish-brown. Antennae with pale annulations. Anterior wings with a silvery lustre, dark yellowish-red suffused with fuscous, shining, some portions of the wing appearing almost slate color, whilst others are dark purplish-red, changing with the light; two or three minute blackish dots upon the disc; posterior wings plumbeous. Legs brown upon their anterior, yellowish on their interior surfaces. *Alar ex.* $\frac{1}{2}$ inch. Kentucky.

The structure of this insect is identical with that of the preceding (*Y. querciella*), except that the anterior wings are scarcely so wide in proportion to their length. It resembles it closely, but may be distinguished by the slightly narrower wings, which have a little wider expanse and have more of a deep dull red, and are not of so bright a brick red.

The larva sews together the leaves of Hickory trees (*Caryæ alba*.) When taken (June 6th) it was about $\frac{3}{4}$ of an inch long, green, with six narrow, and some of them interrupted, white stripes which did not quite reach the anal segment; head ferruginous; the following segment brown; true feet black. The next day it became white suffused with pink, and the longitudinal stripes became deep pink. On the 10th it became a pupa, and on the 23rd the imago emerged.

I should regard this as a variety of *Y. querciella* but for the decided differences in the larva.

6. *Y. Straminiella*. N. sp.

Tongue and second joint of palpi brown, faintly tinged with golden; third joint and apex of the second, pale straw colour. Antennae pale straw colour, each joint tipped above with brown. Head, thorax and

anterior wings pale straw color, thickly dusted with brown. (By artificial light under the lens the dusting becomes golden brown, or bright reddish-golden.) In the apical part of the wing the dusting is dense and assumes the form of an indistinct, irregular, transverse line. Four small spots of the same hue with the dusting, one above the fold, not far from the base, two others opposite each other about the basal fourth, one on the fold, the other on the disc; the other which is, rather, a short streak, about the middle of the wing, the four forming an elongate coffin-shaped figure. (The spots and dusting are only visible under the lens, and to the naked eye, the wings appear of a straw color with a satiny lustre.) Posterior wings silvery, their ciliae straw color. Abdomen conical, straw color dusted with brown. Legs brownish; tarsi brown, annulate with white. *Alar ex. 1¹/₂ inch.* Captured June 16th, in Kentucky. Larva unknown.

The vertex is not greatly elongate, and the wings are rather wide in proportion to their length, and the antennae are microscopically pubescent. I think it must resemble closely *Y. punctaiscellus*, Clem.

SAGARITIS,* gen. nov.

In the absence of any extended means of reference to the works of European Entomologists, and being unable to locate the species below described in any genus known to me, I have been led to establish for it this genus. Possibly it may belong to *Chætochilus*, Steph.

Slender, graceful in appearance. Legs rather long; wings narrow. Maxillary palpi minute, tongue moderate; labial palpi long, recurved, the terminal joint acicular, and almost hidden by the tuft of the second joint, which projects upwards and forwards, instead of downwards and forwards, as in *Ypsolophus* (which otherwise resembles this genus as to the head and palpi.) Vertex narrow elongate. Antennae slender, simple, more than half as long as the wings.

Anterior wings elongate, narrow, faintly falcate beneath the apex. Discal cell closed; the costal attains the margin just behind the middle; subcostal, furcate near the margin, which it attains before the apex, and sending off in its course three branches to the costal margin, one from about the middle, one before the discal vein, and one at the discal vein. Median, furcate beyond the discal vein, both branches attaining the dorsal margin at about the apical fifth; the discal vein sends off three branches, all of which attain the posterior margin behind the apex, the upper branch being furcate; sub-median furcate near the base. Posterior wing a little

**Sagaritis* - A wood Nymph.

wider than the forewing, falcate beneath the apex ; discal cell short, rather wide, closed by a bow-shaped, oblique discal vein ; costal vein and basal portion of the subcostal almost coincident with the costal margin, the subcostal curving downwards towards the discal vein, and again upwards from the discal vein to the apex, before which it becomes furcate, sending a branch to the costal margin above, and another below the apex ; the discal vein sends a branch to the dorsal margin from its middle ; the median is furcate from the discal vein, and sends a branch to the posterior margin from about the middle of the cell ; submedian and internal simple.

It therefore approaches *Ypsolophus* in the neuration, as well as in the palpi. It is still more nearly allied to *Anorthosia*, Clem., but the neuration is quite distinct.

S. gracilella. N. sp.

Pale ochreous yellow. A small brown spot on the costa near the base, another on the fold about midway of the length of the wing, and another nearly opposite it near the costa. A row of small brown spots extending around the apex. Wing sparsely and faintly dusted with brown. *Alar ex.* not quite $\frac{3}{4}$ inch. Kentucky. Larva unknown.

The body is slender and the legs rather long. A single specimen was taken May 7th, resting upon the trunk of a tree. When disturbed it fluttered around for a moment, re-alighting always on the same tree.

DESCRIPTIONS OF NORTH AMERICAN HYMENOPTERA, No. 4

BY E. T. CRESSON,
Continued from Vol. 4, Page 84.

Genus MICROCTONUS, Wesm.

MICROCTONUS AGILIS. *N. sp.*—♂. Piceous, shining ; clypeus and mandibles testaceous ; palpi whitish ; antennæ longer than head and thorax, slender, fuscous, basal third pale ; pleura beneath, rufo-piceous ; tegulæ whitish ; wings hyaline, iridescent ; nervures and stigma fuscous, the latter large, lanceolate ; marginal cell longer than stigma, lanceolate ; legs, including coxæ, pale honey-yellow, extreme tips of posterior tibiae dusky ; abdomen smooth, shining, depressed, first segment tinged with rufo-piceous, gradually dilated to apex. Length .10 inch.

Hab.—Illinois. One specimen.

Genus EUPHORUS, Nees.

EUPHORUS SCULPTUS. *N. sp.*—♀ Black; head shining, pale yellow-ferruginous; spot enclosing ocelli, and occiput black; palpi fuscous; antennæ long, slender, entirely black; mesothorax finely punctured, somewhat shining; scutellum, metathorax and first abdominal segment densely rugose, opaque; metathorax broad, abruptly truncate behind; tegulae rufo-piceous; wings faintly dusky, nervures and stigma fuscous, the latter broad; legs dull ferruginous, coxae black, four posterior trochanters, femora at base, and more or less of their tibiae and tarsi blackish; abdomen beyond first segment sub-ovate, flattened, smooth and polished; first segment broadly dilated at tip; ovipositor pale, nearly as long as abdomen, sheaths black and thickened at tips. Length .15 inch.

Hab.—Illinois. One specimen.

EUPHORUS MELLIPES. *N. sp.*—♂. Black, shining; face with dense silvery-white pile; clypeus and mandibles, except tips, pale ferruginous; palpi pale; antennæ pale ferruginous, more or less dusky toward tips, the joints short and distinct; thorax gibbous, minutely sculptured; metathorax rounded, opaque, coarsely granulated; tegulae pale; wings hyaline, iridescent, nervures pale yellowish, stigma fuscous, paler at base; legs, including coxae, honey-yellow, tips of posterior tibiae and more or less of their tarsi dusky; abdomen small, sub-ovate beyond first segment, depressed, smooth and polished, rufo-piceous; first segment gradually dilated to apex, longitudinally aciculated, black; venter pale rufo-piceous. Length .13 inch.

Hab.—New Jersey; Illinois. Three specimens.

EUPHORUS SCITULUS. *N. sp.*—♀. Head sub-globose, honey-yellow; spot covering ocelli and tips of mandibles black; antennæ about as long as head and thorax, pale fuscous, honey-yellow at base, the joints short, pale sericeous; thorax honey-yellow, darker than head, mesothorax and scutellum fuscous; tegulae pale; wings hyaline, iridescent, nervures and stigma fuscous, the latter large, sub-triangular, marginal cell very short, about one-third the length of stigma; legs, including coxae, pale honey-yellow, posterior femora, tibiae and tarsi more or less dusky; abdomen smooth shining, fuscous, first and base of second segment honey-yellow. Length .08 inch.

Hab.—Illinois. One specimen.

Genus LEIOPHRON, Nees.

LEIOPHRON LAEVIS. *N. sp.*—♂. Deep black, shining; head small, face with a large shining prominence; mandibles dark rufous; palpi dusky; antennae about as long as body, black, scape dull rufo-piceus; thorax finely punctured, middle lobe of mesothorax prominent, as also the scutellum; metathorax opaque, coarsely rugose, rather abrupt posteriorly, on each side above a rather deep longitudinal groove, curving inwardly and meeting on posterior face; tegulae dull rufous; wings hyaline, faintly dusky towards apex, nervures and stigma pale fuscous; legs, including coxae, honey-yellow, posterior coxae blackish at base and beneath, tips of their tibiae and their tarsi slightly dusky; abdomen regularly fusiform from base to apex, first segment black, broad at apex, minutely and rather indistinctly aciculated longitudinally; remainder of abdomen piceous, smooth and polished. Length .20 inch.

Hab.—Canada. (Pettit.) One specimen.

Genus CALYPTUS, Haliday. (*Brachistes*, Wesm.)

CALYPTUS MAJOR. *N. sp.*—♀. Deep black, shining; head transverse, vertex and face irregular, densely punctured, the latter wide, occiput and cheeks smooth; eyes small; clypeus tinged with rufous; mandibles ferruginous, black at tips; palpi whitish; antennae as long as head and thorax, brown black, scape pale brown; thorax shining, mesothoracic lobes prominent, sometimes tinged with brown, central lobe truncate anteriorly, sutures coarsely crenulated; tegulae honey-yellow; wings faintly dusky, nervures and stigma black; legs honey-yellow, coxae and trochanters paler, posterior tibiae fuscous, pale at base, basal joint of their tarsi dusky; abdomen sub-compressed towards apex, smooth and polished, more or less tinged with piceous; first segment longitudinally aciculated; ovipositor as long as body, honey-yellow, sheaths black. Length .18—.22 inch.

Hab.—Canada; Virginia; Illinois. Four specimens.

CALYPTUS ROTUNDICEPS. *N. sp.*—♂. Black, smooth and polished; head nearly globose; mouth brown; palpi whitish; antennae nearly as long as body, slender, brown-black, basal third luteous beneath; tegulae, basal nervures of wings, and legs, pale luteous; wings hyaline, sub-iridescent, faintly dusky at tips, stigma and nervures piceous; apical half of posterior tibiae blackish behind; abdomen smooth and polished, depressed, basal segment longitudinally aciculated. Length .16 inch.

Hab.—Illinois. One specimen.

CALYPTUS TIBIATOR. *N. sp.*—♂. Black, shining; head transversely subquadrate; clypeus, except base, and mandibles, fulvous; palpi white; antennae brown-black above, fulvo-testaceous beneath; tegulae and basal wing nervures honey-yellow; wings hyaline, iridescent, stigma and nervures fuscous; legs pale luteous, spot on tips of posterior femora above, their tibiae except base, and tips of their tarsi, blackish; abdomen short, depressed, shining, two basal segments longitudinally aciculated when viewed under a strong lens, the first segment with two longitudinal carinae, converging at apex. Length .10 inch.

Hab.—New Jersey. One specimen. Smaller than *rotundiceps*, which it closely resembles.

CALYPTUS MEXICANUS. *N. sp.*—♂. Deep black, sub-opaque, clothed with a very short whitish pile; head transverse; mandibles and palpi brown; antennae brown-black; middle lobe of mesothorax with a central longitudinal ridge, the sutures broad and deep, meeting on the disc before posterior margin; two deep square depressions before scutellum; metathorax coarsely reticulated; depressions of pleura and pectus coarsely striated; tegulae piceous; wings hyaline, iridescent, slightly dusky at tips; legs black, more or less tinged with brownish, the four anterior tarsi pale fuscous; abdomen sub-convex, coarsely and longitudinally aciculated or striated, first segment with two prominent longitudinal carinae, converging towards apex, apical margin of second segment narrowly smooth and polished. Length .20 inch.

Hab.—Orizaba, Mexico. (Prof. Sumichrast.) One specimen.

Genus EUBADIZON, Nees.

EUBADIZON MACULIVENTRIS, Cesson, Trans. Am. Ent. Soc., Nov., 1872.

Hab.—Texas. One ♂ specimen.

EUBADIZON LATERALIS. *N. sp.*—♂. Pale honey-yellow; palpi whitish; spot covering ocelli and occiput fuscous; antennae nearly as long as body, fuscous above, testaceous beneath, pale at base; mesothorax except sides of middle lobe, scutellar region and metathorax above blackish; metathorax rounded above, smooth, without carinae; wings hyaline, iridescent, stigma and nervures fuscous; legs paler than body, tips of posterior femora, their tibiae and tarsi blackish, bases of their

tibiae narrowly whitish; abdomen sub-opaque, blackish above, apical corners of first segment, and spot at sides of remaining segments pale honey-yellow; ovipositor nearly as long as body, sheaths blackish. Length .14 inch.

Hab.—Illinois. One specimen. Much smaller than *maculiventris*, and differently marked.

EUBADIZON PLEURALIS. *N. sp.*—♂ ♀. Black, smooth and shining; mandibles dull testaceous; palpi whitish; antennae long and slender, brown beneath, paler at base; mesothorax more or less tinged with testaceous; scutellum pale testaceous; pleura honey-yellow; tegulae and basal wing nervures whitish; wings hyaline, beautifully iridescent, nervures dusky, stigma pale, sub-hyaline; legs, including coxae, pale yellowish-white, tarsi more or less and tips of posterior tibiae dusky; abdomen entirely black, shining; ovipositor of ♀ rather longer than body, honey-yellow, sheaths black. Length .16—.18 inch.

Hab.—Missouri. (Riley.) Three specimens.

EUBADIZON AMERICANUS. *N. sp.*—♀. Black, shining; mandibles and palpi pale testaceous; antennae brown-black, as long as head and thorax, scape piceous above, testaceous beneath; metathorax rugose, with a deep depression on each side above, behind the middle; tegulae and basal wing nervures pale honey-yellow; wings faintly dusky, sub-iridescent, nervures and stigma fuscous, the latter large and sometimes black; legs, including coxae, honey-yellow, the tarsi and posterior tibiae except base, blackish; the first, and second except apex, longitudinally roughened, the remainder smooth and polished, base of first segment with two elevated carinae; ovipositor longer than body. Length .18—.20 inch.

Hab.—New Jersey. Ten specimens. Distinguished from *pleuralis* by the entirely black thorax, dark stigma and wing nervures and roughened base of abdomen.

Genus ICHNEUTES, Nees.

ICHNEUTES ABDOMINALIS, Cress. Trans. Am. Ent. Soc., Nov., 1872.

Hab.—Texas. (Belfrage.) One ♀ specimen.

ICHNEUTES BICOLOR. *N. sp.*—♀. Black, clothed with a very short whitish sericeous pile, very dense on the face; mandibles and palpi dull testaceous; thorax smooth and shining, metathorax opaque; tegulae honey-yellow; wings hyaline, iridescent, costal nerve black, lower margin

of stigma and nervures fuscous ; legs, including coxae, honey-yellow, tarsi varied with dusky ; abdomen fulvo-ferruginous, base of first segment and apical and lateral margins of third and following segments black ; first and second segments opaque, roughened, remaining segments smooth and shining. Length .20 inch.

Hab.—Massachusetts. One specimen.

ICHNEUTES FULVIPES. *N. sp.*—♂. Black, shining, face and pleura clothed with pale glittering pile, longer and more dense on the face ; mandibles and palpi dull testaceous ; antennae dark brown ; tegulae and space in front honey-yellow ; metathorax rough, opaque ; wings faintly dusky at tips, iridescent, costal nerve black, lower half of stigma and the nervures fuscous ; legs, including coxae, pale honey-yellow, tarsi more or less tinged with dusky ; two basal segments roughened, opaque, very obscurely tinged with dull rufous, remaining segments black, smooth and shining. Length .17 inch.

Hab.—Illinois. One specimen. This may prove to be the ♂ of *bicolor*.

(To be Continued.)

INSECTS OF THE NORTHERN PARTS OF BRITISH AMERICA

COMPILED BY THE EDITOR.

From Kirby's Fauna Boreali-Americana: Insecta.

(Continued from Page 108.)

281. CHRYSOMELA CONFINIS Kirby.—Length of body $4\frac{1}{2}$ lines. A single specimen taken in Nova Scotia by Capt. Hall.

Nearly related to the preceding species. Body oblong, obscurely bronzed-green, grossly punctured. Palpi, antennae, legs, and rhinarium ferruginous : punctures of the prothorax scattered in masses, with the interstices very minutely punctured : scutellum bronzed : elytra reddish with a discoidal flexuose irregular pale stripe dilated at the base and towards the apex ; there are also two flexuose dark-green discoidal stripes in the disk, the exterior one nearly reaching the base, and the interior approaching nearer to the apex, between these towards the base is a single oblong green spot, and outside them are many irregular ones of the same colour ; all these spots and stripes are convex and mostly circumscribed

by punctures; there is a double series of punctures diverging towards the base; and an oblique abbreviated one between these and the scutellum, as in many *Harpalidae*, &c.; the interstice between the double series is green at the base. There is a lateral series of punctures also as in *C. Philadelphica*.

[Synonymous with *C. Spiraeae* Say. Taken on Lake Superior by Agassiz.]

[212.] 282. *CHRYSOMELA BIGSBYANA* Kirby.—Length of body 4 lines. A single ♀ specimen taken in Canada by Dr. Bigsby. [Taken in Ontario.]

Colour and sculpture of the body like those of the preceding species, from which *C. Bigsbyana* differs principally in having the sides and the anterior margin of the prothorax reddish-yellow; the elytra are of the same colour, but the suture itself, especially at the base, a stripe parallel to it, a large humeral bilobed spot, the interior lobe of which is obtusangular or broken, and several irregular dots and spots on the elytra are black-green.

283. *CHRYSOMELA MULTIPUNCTATA* Say.—Length of body $4\frac{1}{4}$ lines. Taken frequently in the journey from New York to Cumberland House. [Taken in Canada.]

Body, head, antennae, and legs ferruginous. Prothorax pale-yellow, with two posterior triangular ferruginous spots with a dot of the same colour between them; the punctures of the prothorax are more numerous and smaller than in *C. Philadelphica*, &c.; elytra yellowish-white; suture and a confluent stripe circumscribed with the double series of punctures, diverging towards the base of the elytra, ferruginous; surface covered with irregular greenish dots and short lines, as in the preceding species, a row of punctures marks the exterior side of the elytra, the interstice between it and the margin is immaculate and unpunctured, the rest of the elytrum being thickly covered with scattered minute punctures.

[213.] 284. *CHRYSOMELA CLIVICOLLIS* Kirby.—Length of body $4\frac{3}{4}$ lines. A single specimen taken in Canada by Dr. Bigsby.

Body between oblong and hemispherical, violet. Head punctured; labrum without punctures: prothorax elevated in the centre to an obtuse peak, from the summit of which descend several concentric channels which run nearly to the margin, the interstices of which are punctured: scutellum violet with a green tint: elytra reddish, punctured, punctures scattered with some tendency to arrange into rows; three large dark

violet spots distinguish the elytra, the first upon the shoulders subtriangular with the vertex truncated, the second near the apex bilobed, the third at the base forming with that on the other elytrum a large cruciform spot; suture violet: anterior thighs armed with two stout teeth.

285. *CHRYSOMELA RUFIPES* *De Geer*.—Length of body $2\frac{3}{4}$ lines. A single specimen taken in the Expedition.

[214.] The American differs a little from the British specimens. In the first place it is scarcely half the size, not only the mouth but the space before and between the eyes is rufous, only the vertex and occiput being black: the black spot of the prothorax, instead of consisting of two distinct spots connected only at their base, is only divided at its apex into two lobes, and the spots of the elytra though similarly arranged, are less distinct: they agree in having the body underneath, except the rufous anus, black; and the legs rufous.

[Taken on Lake Superior by Agassiz's Expedition.]

286. *PHÆDON ADONIDIS* *Pallas*.—Length of body 3-4 lines. Several specimens taken in Lat. 54° .

[215.] Body black, punctured, sprinkled underneath with cinereous hairs. Vertex rufous with an occipital black spot: prothorax reddish-yellow, with a large discoidal black spot reaching from base to apex and constricted anteriorly; on each side also there is a round black dot; scutellum black, impunctured: elytra reddish-yellow, thickly punctured with scattered punctures; suture black except at the base; a black discoidal stripe or blotch reaching neither to the base nor the apex, anteriorly obliquely truncated and posteriorly acute, also distinguishes these organs.

VARIETY B. With the discoidal stripe acute at each extremity and smaller.

VARIETY C. With the discoidal stripe evanescent.

[Taken at Fort Simpson, Mackenzie River, by Mr. Kennicott.]

287. *PHÆDON RAPHANI* *Fabr*.—Length of body $2\frac{1}{6}$ - $2\frac{3}{4}$ lines. Several taken in Lat. 54° .

Body oblong, punctured, glossy; underneath black with the disk a little bronzed, above green or green-gold. Head and prothorax minutely punctured; five first joints of the antennæ bronzed and glossy; the remainder cinereous and obscure: scutellum impunctured, violet: elytra

very thickly punctured, punctures not arranged in rows : parapleura confluent punctured : disk of the postpectus bronzed and transversely striated with very slightly impressed striolæ.

In the female the abdomen, as in *Ph. Polygona*, is often so distended with eggs as to make the elytra appear abbreviated.

VARIETY B. With the whole of the upper surface green, without any golden lustre.

[This and the two following species are included in the genus *Gastrophysa* Chev.]

[216.] 288. *PHÆDON POLYGONI* Linn.—Length of body 2 lines. Taken in Nova Scotia by Dr. MacCulloch and Capt. Hall. [Very common in Canada.]

Body oblong-ovate, punctured, glossy, underneath black. Head deep blue, with an abbreviated channel in the vertex between the eyes ; antennæ piceous, with the first five joints rufous : prothorax convex, rufous : elytra deep blue, thickly punctured : legs rufous with piceous tarsi ; anus rufous.

289. *PHYLLODECTA VITELLINÆ* Linn.—Length of body $2\frac{1}{3}$ lines.

[217.] Body oblong, a little inclining to ovate, glossy ; underneath black-bronzed, scarcely punctured ; above bronzed with a copper tint, minutely punctured. First and second joints of the antennæ rufous : scutellum impunctured : elytra punctured in rows, with the interstices indistinctly punctured : tarsi piceous with the first joint rufous.

[Taken on Lake Superior by Agassiz's Expedition ; in Ontario, also.]

Family HALTICIDÆ.

290. *HALTICA (ORCHESTRIS) VICINA* Kirby.—Length of body $3\frac{1}{3}$ lines. A single specimen taken.

Body underneath pale rufous with the disk of the postpectus black. Head punctured in the vertex, dirty-white, with a pair of contiguous black dots between the eyes and a subtriangular one on the nose ; antennæ black with the underside of the scape and the two next joints dusky-rufous : prothorax very minutely and lightly punctured, white with two irregular black spots placed obliquely on each side, and a black longitudinal streak between them : scutellum black : elytra very minutely and thickly punctured, with a sutural stripe common to both, a discoidal one rather nearer the lateral margin, and another just above it all black ; the intermediate stripe falls short of the apex of the elytra : the upper side of the tibiae is dusky, and the tarsi are black.

[218.] 291. HALTICA (ORCHESTRIS) PUNCTICOLLIS Kirby.—Plate vii, fig. 9.—Length of body $2\frac{3}{4}$ -3 lines. A single specimen taken in Lat. 65° . Taken also by Prof. Peck in New England?

Body subovate, very black, underneath glossy. Head irregularly punctured behind: antennae underneath piceous at the base: prothorax very minutely and lightly punctured, pale-yellow with two black round dots in the disk between which above the scutellum is a less black triangular impression: elytra very minutely and lightly punctured: forebreast pale-yellow.

VARIETY B. Elytra with a blue tint.

ILLUSTRATIONS OF NORTH AMERICAN ENTOMOLOGY.

We are indebted to the kindness of Prof. Townend Glover, Entomologist of the Agricultural Department, Washington, for the first part of his new illustrated work on our North American insects. This part contains thirteen finely colored plates, in which are figured nearly all our described Orthoptera. The engravings, which are very beautiful, are from copper plates, and are, both in design and execution, the production of the talented author. We deem this work, of which the first number is merely introductory, one of very great merit, and sincerely hope that our esteemed friend will be enabled to continue it until the whole of his valuable material, which has cost him many years of patient labor and study, and which includes figures of a large proportion of our insects of all orders, may be given to the scientific world.

We observe that this first edition of the first part, of fifty copies only, has been generously published at the author's own expense. It is not to be expected that so costly a work could be undertaken by any private individual; we trust, therefore, that the Department of Agriculture, which he has so long, ably, and faithfully served, will at once recognize the value of his labors, and that upon their recommendation, Congress will, with its accustomed liberality in all scientific matters, make such appropriation as may enable the author to give the world the benefit of his patient and persevering study; the more especially as this work will treat of the many insects injurious to vegetation, and will therefore be of immense practical value to Agriculturists as well as to Entomologists.

NOTES ON SOME GENERA OF CANADIAN INSECTS.

BY FRANCIS WALKER, LONDON, ENGLAND.

Genus *Chalcis*.

This genus comes next to *Smicra*, which has the greatest development of the peculiar characters of the family *Chalcididae*, such as the compact antennæ, the robust body, the large quadrate prothorax, and the much dilated hind thighs. In all these characters this family agrees with *Leucospidae*, from which it totally differs in the structure of the abdomen, and the two families have a supremacy of structure which is not wholly shared by any other in the tribe *Chalcididae*. *Chalcis* is followed by *Haltichella*. In the latter, which attains its largest size in Australia, the above structure is less prominent, the insertion of the antennæ descends from the snout towards the mouth, and the flagellum is more whip-like and has more active vibration, and resembles that of some species of *Encyrtus*, to which genus *Haltichella* has also a resemblance in the shortness of the ulna vein. Unlike *Smicra*, which chiefly dwells in S. America, *Chalcis* is spread somewhat equally and extensively over the globe. It consists of numerous forms which are generally closely allied to each other in structure and colouring, and are not easily distinguishable, and suggest the idea that species are now determinate and concise by the obliteration of former links, and that in some cases these links are not yet extinct. The respective differences of these species require to be concisely shown in a synopsis. In a few forms the abdomen of the female departs much from the usual structure, the apical part being attenuated and nearly cylindrical; an example of this occurs in the Amazon region and another in Arabia. In another case the male has pectinated antennæ, and has been considered as a distinct genus. *C. Healegon*, an Australian species, has red antennæ and a red abdomen, and thus differs remarkably from the rest, the colour being almost always black, the legs varied with yellow and sometimes partly red. *C. minuta*, a Canadian species, occurs in England and is more frequent in S. Europe; it also inhabits the U. S., and is probably identical with *C. annulipes*, so named from West Indian specimens, and it may be supposed to have spread northward in both continents, and we have but to assume a continuous belt of tropic land in former times, round the globe and connecting continents in the Atlantic and Pacific, and alternate change of climate, and then the more or less extent of insect species becomes a mere question of time. *C. flavipes*

inhabits S. Europe, and also occurs in China, and was probably there and in Hindostan before it came into Europe. These two species are thus examples of the two affinities of the European insect race, one with North America, the other with North Asia, and both increasing northward. Many genera of insects may be traced from the tropics northward, and their species may be observed in successively smaller circles till they attain their highest latitude. The distribution of the insect race by migration, and the variety thereby of their kinds in different regions, afford far greater proofs of the design, and contrivance, and wisdom of the Creator, than would have been manifested by their immediate appearance in the spots where they now exist.

MISCELLANEOUS.

MELITÆA HARRISII.—Mr. W. H. Edwards, of Coalburgh, W. Va. has, during the past summer, reared the larva of *Melitaea Harrisii*. It was found feeding on *Actinomerus squarrosa*, a composite plant allied to *Helianthus*. It is probable that this species, so widely distributed, feeds on many of these closely allied plants in different localities.—W. SAUNDERS.

Fig. 14.



OSMIA CANADENSIS Cresson.—This insect, which was described by Mr. E. T. Cresson, of Philadelphia in the Pro. Ent. Soc., Phila., vol. 3, p. 23, has been found destructive to the foliage of some strawberry plants, by Mr. J. Pettit, of Grimsby, who has kindly furnished me with specimens. It was observed during the past season in the Township

of Oxford. For the accompanying figure, which represents the female, I am indebted to my esteemed friend, Mr. Cresson, who very kindly made the drawing from which the cut was engraved. I am also indebted to him for the determination of the species. In the figure the insect is represented on an enlarged scale, the hair line at the side showing its natural length. In both sexes the head, thorax, and abdomen are green, and more or less densely covered with whitish down or short hairs, those on

the thorax being longest. The female is larger than the male. The male is fully described by Mr. Cresson in the volume above mentioned, to which the reader is referred.

Mr. Pettit says "the insects were taken in East Oxford, July 2nd, on a few strawberry plants in my brother's garden. The plants, perhaps nearly 100 in number, had been nearly all denuded of their leaves, and a search in the evening having failed to reveal the authors of the mischief, I examined them again in the heat of the day, and found the little culprits actively engaged in nibbling away the remaining shreds of the leaves. They appeared to chew the fragments into a pulp, and carry it away, but the little time I spent in observing them was insufficient to determine anything further respecting their habits."

Doubtless the leaves so consumed were used either in the construction or lining of their nests.—W. SAUNDERS.

NOTES ON SOME BUTTERFLIES AND THEIR LARVA.—We extract the following interesting details in reference to the life history of some of our butterflies, from a letter received from Mr. W. H. Edwards, of Coalburgh, West Virginia, U. S., under date of October 12th:—W. S.

"I have in all, probably 200 eggs of *Argynnis Cybele*, some deposited on violet leaves, and some on the cloth that covered the keg in which I confined the females, with the growing plant, and I suppose half of them have given larvae. I also had quite a number of eggs of *Aphrodite*, and a few larvae from them. I endeavored this time to avoid dryness, as the contrary state seemed to be most natural to these larvæ, and I attained this end by placing wet sand in the bottom of a glass goblet, in which sand were stuck small sprigs, or single leaves of different sorts of wild violets, all the species I could find hereabouts at this season; I also tried the pansy. The goblets I covered with damp cloths."

"The young larvæ, as soon as hatched, were transferred to these various leaves, and as none have died—although three weeks have elapsed since the first were hatched—I think they must be healthy. They are but little bigger than when hatched, but must have eaten for some days, as they were then pretty lively, but I have been unable to discover on the leaves any visible evidence of feeding. I presume they eat the surface of the leaf, not the edge. For a week past I have seen no sign of motion, but the larvæ remain in the same position. In the grooves of the larger violet leaves are several, three or four in a row, and I notice that the

folded edges of leaves are sure to contain some tenants. These larvæ are about one-tenth of an inch in length, very hairy; and they have a way, when touched, of doubling themselves up, and it is easy to handle them then by a pin with a bent point. I find I can lift them off a leaf even when they are lethargic, by means of the pin, and transfer them to another leaf, when they straighten themselves out slowly and then resume their first position. As it will be impossible for me to carry them through the winter on fresh violet leaves, I shall have to place the leaves now occupied in tin boxes or some other suitable vessels, and trust to skill or good luck, hoping that by one or the other of these some of the larvæ may reach next spring alive."

"On looking over the old volumes of the CAN. ENT., I see your description of *Libythea Bachmannii*. There is a query about *Motya* in the September number of the magazine. I am sure that *Bachmannii* is the species found in the Northern States and Canada. *L. Motya* I do not know. Scudder says it is a West Indian species, and perhaps found in our Southern States. *Bachmannii* varies much, especially in the appearance of underside of secondaries, some being of a uniform brown, and others beautifully shaded with brown and fuscous or ashen. I had the good fortune to raise a brood this season from the egg, and found both the varieties spoken of, among the butterflies. I will try to find time to write a history of these larvæ for the ENTOMOLOGIST soon. I have also partially raised from the egg a brood of *Afatura celtis*, but after the second moult they seem to have undertaken their winter's sleep. The eggs of both these species are very interesting."—W. H. EDWARDS.

SIR JOHN LUBBOCK'S PET WASP.—From the *Daily Telegraph*, London, England.—One of the most curious attendants this year at the gathering of the British Association in Brighton, was a little gentleman in brown overcoat, with black and yellow nether garments, wearing a sharp sword poisoned at the tip. We are inclined to think that, next to Mr. Stanley, this visitor might be called by far the most remarkable and best worth attention among all the assembled notabilities. It was Sir John Lubbock's pet wasp; and the respect which would naturally be paid to any friend of the benevolent *savant* who has given London its new holidays, was really due to this insect on its own account. Captured in a nest of soft grey paper in the Pyrenees, the wasp was the very first of its species that had ever received an education. Sir John exhibited it to the members of the Association with just pride, as a proof of what kindness

and patience can effect upon the most unpromising creatures ; and even Mr. Forster might have wondered to see it come out of the glass bottle where it lives, eat sugar from its master's fingers, allow him to stroke its striped back, and fly round and round his head, returning always to its home in the bottle. At first, says its distinguished educator, it was "rather too ready with its sting," but now it never thinks of unsheathing the tiny rapier at its tail ; and nobody who saw the insect could doubt that its nature had been greatly changed.

A PLAGUE of butterflies is a rare occurrence. A short time ago, however, the town of Florence was invaded by a prodigious quantity of these insects. All the distance of the Long'arno between the Piazza Mánin and the Barriera and in all the adjacent streets the passage was almost obstructed by an extraordinary quantity of butterflies that had swarmed in such thick clouds round the gaslights that the streets were comparatively dark. Fires were immediately lighted by order of the Municipality and by private citizens, in which the butterflies burnt their wings, so that half an hour afterwards one walked on a layer formed by the bodies of the butterflies an inch thick !!! They were of a whitish colour, and some of the streets appeared as if covered with snow, at least so say the Italian papers.—*Nature*.

OUR ANNUAL REPORT.—We expect to be able to mail to each of our members a copy of the Annual Report of the Entomological Society of Ontario to the Department of Agriculture for 1872, sometime during the month of January, 1873. It will treat of insects injurious to the strawberry, grape, potato, hop, and maple. There will also be a chapter on beneficial insects, and a short history of some of our more common innoxious insects, all illustrated as far as possible by suitable figures.

PIERIS VERNALIS.—Mr. G. M. Dodge writes us from Illinois that on October 16th and 19th, 1872, he captured two male specimens of this butterfly, but that the cold weather then coming on, he saw no more. He enquires if it is not a little remarkable that this species should occur in the fall ? and if the fact does not militate against the idea entertained that *vernalis* is the spring brood of *P. protodice*.—E. B. R.

THE AMERICAN ENTOMOLOGIST.—I have a few bound copies of the two volumes of this periodical, which I will send post-paid by mail upon receipt of \$3.50 per volume, or \$6.50 for both. Address C. V. RILEY, Room 29, Insurance Building, St. Louis, Mo.

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